

# MA 115 Final Exam Formula Sheet

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**Exam 2**

$$f(b) - f(a)$$

$$\frac{f(b) - f(a)}{b - a}$$

$$y = mx + b$$

$$y = y_0 + m(x - x_0)$$

$$f(x) = a(x - h)^2 + k$$

$$h = -\frac{b}{2a}$$

$$k = c - \frac{b^2}{4a}$$

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**Exam 3**

$$f(x) = a^x, a > 0, a \neq 0$$

$$f(x) = \log_a x, a > 0, a \neq 0$$

$$y = \log_a x \iff a^y = x$$

$$\log_a (AB) = \log_a (A) + \log_a (B)$$

$$\log_a \left( \frac{A}{B} \right) = \log_a (A) - \log_a (B)$$

$$\log_a (A^C) = C \log_a (A)$$

$$\log_b x = \frac{\log_a x}{\log_a b}$$

$$N(t) = N_0 2^{t/a}$$

$$N(t) = N_0 e^{rt}$$

$$R(t) = R_0 2^{-t/h}$$

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**Exam 4**

$$T = \frac{2\pi}{k}$$

$$k = \frac{2\pi}{T}$$

$$\nu = \frac{1}{T}$$

$$2\pi\nu = k$$

$$s(t) = v + a \sin(k(t - h))$$

$$c(t) = v + a \cos(k(t - h))$$

$$y(t) = a \sin(\omega t + b)$$

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